

Sumanâ-a Tyokanorjopa (Fusion Reactors)



The [Poku Saeruo Degonjo](#) have been using Fusion Reactors since prior to their arrival in the Kikyo sector in YE -719.

About Fusion Reactors

The clan uses fusion reactors for their primary backup power system. They are generally installed in parallel to the primary power system. Although they can produce only half as much a [Âmanus Tyokanorjopa \(Anti-Hydrogen Reactor\)](#) of the same size, they are safer because the fuel is non-volatile. Fusion reactors are self-sustaining once fusion begins until the conditions in the reactor change. In the event of a critical system failure the core can be vented through shielded emergency dampers.

Inside the Reactor

The reactor contains the following components:

- Pre-Stage
- Initiating lasers
- Containment force-field
- Reaction Chamber
- Heat Exchangers
- Cooling System

Fuel Pre-Stage

There is a fuel pre-stage area where the fuel is held prior to being released into the reactor. In this area the fuel is heated to change the fuel from a liquid to gaseous state. The size of the reactor determines the number of fuel module connection points. Though normally four is the maximum.

Initiating Lasers

These lasers are used to preheat the fuel mixture to a level close to where fusion occurs. Once the

temperature is reached the lasers disengage.

Containment Force-field

The force field containment serves two purposes. The first obviously is to protect the reactor structure from being slagged by the reaction. Secondly when the fuel temperature has reached the priming level, the containment field collapses inward to compress the fuel and trigger the fusion reaction.

Reactor Chamber

The reaction chamber is where the two types of fuel are brought together in a controlled fashion. Fuel is released from the Pre-Stage chamber into the core for reaction. The containment force-fields allow the fuel to pass into the chamber.

Core

The interior or core of the reactor is shielded by force-fields to keep the fuel and the energy from damaging the physical structure. The force-fields along with the [Saemâqi \(Star Metal\)](#) casing also keep harmful radiation contained during normal operation.

Heat Exchange System

Inside the reactor are several heat exchanger units. These are constructed out of tough durable material. A series of tubing carrying heat transfer fluid pass through the reactor to be super-heated. There are two sets of heat exchangers in the reaction chamber. The super-heated fluid is then transferred into the [Gean Norjopa \(Generator\)](#).

Cooling System

The cooling system is designed to keep the reactor housing from super-heating and being reduced to a molten slag. The body of the reactor is filled with tubing and heat collecting panels. Cooled liquid is pumped throw the tubing and cools the reactor by heat transfer. The heated fluid is then cooled and then recirculated. The waste heat is then released by radiator fins into space.

Fuel

The Reactor uses two forms of Hydrogen for its fuel.

- Hydrogen-2 (Deuterium)
- Hydrogen-3 (Tritium)

The fuel is stored in containment modules. They modules are refilled by the Void Berth.

Hydrogen Containment Module

The HCM modules are for the storage of the hydrogen fuel.

OOO Notes

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